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Origin of Species,

A New Theory,

BY B. G. FERRIS.

ITHACA, N. Y.
ITHACA DEMOCRAT PRINT.
1871.

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ORIGIN OF SPECIES.

HARVARD UNIVERSITY

The creation of animal life and structures has two aspects :—that which we *see* continually going on in reproduction ; and that which we have *not seen*, to-wit ; the original creation of the ancestral type of each species. It is our province to reason from the seen to the unseen. The flame of burning iron gives a peculiar color in the spectrum, which never varies. That we *see*. The same color appears in the analysis of the solar rays, by which we gain a knowledge of the *unseen* vapour of iron in the sun.

All theories outside of the old, and now generally discarded idea of "special creation," are that species originated through the *ordinary* process of generation. It was that of Lamark, and of the "Vestiges of Creation"—it is that of Darwin. There is much of minor detail, but none go back of this process.—Darwin, after the production of five or six primordial types, in a way which he does not explain, propagates them in the usual way ; but varies them into existing species, by his much noted idea of "Natural selection." The Duke of Argyll, who is fast gaining the credit of being one of the closest thinkers of the time, and who in his late work : "The Reign of Law," has given some very cogent answers to the Darwinian theory, fails to see any process beyond

that of ordinary generation. He says: "If I am asked whether I believe that every separate species has been a separate creation—not born, but separately made—I must answer that I do not believe it." (236) "There is one idea which has been common to all theories of Development, and that is, the idea that ordinary generation has somehow been producing, from time to time, extraordinary effects, and that a new species is, in fact, simply an unusual birth." (214).

We see that animal creation as it goes on under our observation, is by the ordinary process. From this we are able to evolve, not merely the general, but the invariable rule, that every living organism, within historic times, has required a receptacle or matrix, for its conception, gradual development, and final birth. Surely, from what we thus see, we should be able to find a general law for the production of new species. If species are reproduced by this ordinary process—then it is fair to conclude that they must have originated, not by "an unusual birth," but by an *extraordinary generation;* and herein, I apprehend, will be found the key to the whole mystery.

In the first place, let us be clearly understood as to what we definitely mean by CREATION; and then on certain admitted facts, and fair deductions, we may gain some knowledge of the extraordinary generation under which new species have originated.

The remark is often made, that preservation is perpetual creation ; and it is true, because it requires precisely the same power, exerted in the same way to preserve, that it does to create. How our bodies are preserved we see. They waste and renew every day ; and it takes not many days to give each of us an entirely new body. We renew our bodies by food; and what is food but *dust*, so to speak, in an organized form ? We live, therefore, corporeally on dust —in other words, we are continually created from the dust of the earth. But who gives this dust, organized as bread and meat, power to furnish sustaining elements to the body ? Who gives to the organs of the body power to digest and appropriate this dust when taken in as food ? We see certain operations of matter upon matter, which we term cause and effect, so uniform, that the like cause invariably produces the like effect. Who organized and regulates the laws of cause and effect ? We see immense siderial systems, in which worlds without number are kept in continual and harmonious motion, each preserving its relative position with the other. How came they to exist, and what power devised and preserves the centrifugal and centripetal forces which hold them under control ? In fine, we see everywhere the evidences of design ; and are brought face to face with the First Cause. Science, to escape the fate of a *felo de se*, can no longer afford to ignore the existence of a Creator.

It seems to me such existence may be proved scientifically, with the same certainty of any proposition depending on deductions from known premises.

Assuming then, the existence of a Creator—God—by whom all things were and are created; let us see if in the phenomena of matter, manifested to us, he does not permit us to form some rational idea of the *modus operandi* of Creation.

The questions here suggested are of the gravest character. How does the Creator work, in the creation of those animals and plants of the time being? How is the power exerted which gives efficiency to the intermediate causes which fall under our observation? Is it spasmodic and fractionary, or uniform and incessant? We very well know that not a blade of grass—not a shrub or a tree can grow—not a flower can blossom, or a fruit ripen—not an animal organism can be formed or developed, without an influx of light and heat from the sun; and that, were the sun blotted out, all vegetable and animal life would soon cease. Light and heat, however, are only intermediate causes—mere agents—in the production of creative results, since it is not to be supposed, that they have original power in themselves to perform the work. We can see that such flow of light and heat is uniform and incessant; and we can easily understand why it should be so. In scientific investigations, we may mount to the sun;

but that is the topmost round of the ladder, and mere science will help us no farther.

We may, however, safely infer that the sun is proximate to the Creator—in other words, that it was the first proximate proceeding or projection from Him, in the creation of material things. The sun is everywhere present in the solar system, by its heat and light ; and in this respect affords an illustration of creative omnipresence.

We see how the sun works as an agent, and beyond this we do not see ; but reasoning from the seen to the unseen, we are prepared to say that creative energy or power flows ceaselessly from the Creator, in the creation, first of the material sun, next of the earth through the sun, and next of animals and plants through the sun and the earth, producing one after another, the numberless detail of created things; and the farther we go, the longer the chain of intermediate causes. This influx is necessarily incessant. Its interruption for a moment, would suspend all the operations of the laws of cause and effect. The sun would be extinguished, and all vitality and motion cease. It is difficult for the imagination to take in the full consequences that would follow. Perhaps *annihilation*—the sudden reduction of everything to *nothing*—would best express the situation.

This omnipresent and unceasing action of creative power, seems not to have been comprehended by those who have theorized on the origin of species.—

Thus we find the author of "Vestiges of Creation" saying: "Is it conceivable, as a fitting mode of exercise for creative intelligence, that it should be constantly *moving from one sphere to another*, to form and plant the various species which may be required in each situation at particular times?—Yet such is the notion which we must form, if we adhere to the doctrine of special exercise." (p. 121).

Well let us see. The heat and light of the sun is absolutely necessary, for the growth of wheat; and the farmers of an entire continent have prepared the ground, and sown the grain in especial reference to the operation of these elements. Does the sun find it necessary to give its attention first to one farm and then to another, in order to perfect each crop? And can it be supposed that the sun's Creator has any less range and potency of creative action?

I have already said, that so far as all animal forms within the historic period are concerned, a receptacle or matrix has been used, and therefore found necessary in their creation. It may be added, that there is no fact known to science, or any reason by analogy by which the inference is warranted, that any different mode has been adopted in the production of the ancestral types of the several species which have existed, and still exist. This theory of creation, by Influx and incipient ova or matrices, receives remarkable confirmation in those facts in the history of creation, which are conceded to be true, and to

which the attention of the reader is now called.

First, The creation of the material universe has proceeded from that which is rudimentary and imperfect, successively to that which is more and more perfect.

Passing by the question as to what may have been the elementary appearances of the sun, as beyond the reach of any fact known to us ; it is now universally conceded that the rudiments of the earth were projected or thrown from the sun in a gaseous or nebulous form ; and that by a series of changes, running through a vast period of time, our planet has been brought into its present condition.

The animal kingdom commenced at the lowest in the scale, with the *Protozoa*, and thence proceeded, step by step, up to man, the crowning work of creation. Says Hugh Miller : "It is of itself an extraordinary fact, without reference to other considerations, that the order adopted by Cuvier in his 'Animal Kingdom,' as that in which the four great classes of vertebrate animals, when marshalled according to their rank and standing, naturally range, should be also that in which they occur in order of time. The brain, which bears an average proportion to the spinal cord of not more than two to one, comes first—it is the brain of the fish ; that which bears to the spinal cord an average of two and a half to one succeeded it—it is the brain of the reptile ; then came the brain averaging as three to one—it is that of the

bird. Next in succession came the brain that averages as four to one—it is that of the mammal; and last of all these appeared a brain that averages as twenty-three to one—reasoning, calculating man has come upon the scene." ("Footprints of the Creator," 283.)

Second, The evidence derived from Palæontology shows the animal kingdom wonderfully linked together in its gradations from the lowest forms of life up to man. It is not pretended that every link in the vast chain has been discovered, but enough is known to establish a general rule.

First appear traces of *infusoria;* then *polypiaria, crinoidea*, and some humble forms of the *articulata and molusca*, ages before there were any higher types of being. The lowest fishes partake of the character of the lower sub-kingdom of the *articulata.*

"As the *Onchus* of the Ludlow rocks, announced, as it were the dawn of vertebrate life, and foreshadowed also, others of its class that were to follow, so the *Holoptychus*, and others of the old red sandstone, in turn pointed forward to the Reptilian class. (McCosh, *Typ. Forms*, 328.)

The *Amphybia* seems to connect life in the water with that of the land. Reptiles advance from fishes, and birds from reptiles. The *Rhyncosaurus* has the body of a reptile, with the beak and feet of a bird, and is the link between reptiles and and birds.—Birds of the ostrich tribe, (*Struthionidæ*) especially

the *Apteryx*, having imperfectly developed wings, a diaphragm, and feathers somewhat resembling hair, stand between birds and mammalia; and in the same connection may be mentioned the *Ornithorynchus*, the lowest of the mammalia, and having webbed feet. The *Marsupia* connect the *Oviparous*, with the higher mammifers. The *Mosœsaurus* is intermediate between the *Monitor* and *Iguana*.—The generic distinction between the *Mastodon* and the *Elephant*, has been almost entirely broken down by the discovery of between twenty and thirty intermediate species, some ranging as far back as the Miocene period. (Lyell Ant. Man, 436). The *Anthropoid Ape* evidently stands between animals and the human race.

It is not pretended that anything more than a general outline of these connections is here traced.

The gradual development of the brain, also, furnishes strong evidence of this linking together of the animal kingdom. The lowest vertebrate—*Amphioxus Lanceolatus*—has a short spinal cord, but no brain. The next advance in fishes, furnishes a brain. We have already seen, from Hugh Miller, the cerebral development in proportion to the length of the spinal cord. Prof. Huxley, in his "*Man's Place in Nature*," has thrown a flood of light on the mammalian brain, in its upward progress. Man, he says: "has been affirmed to differ fundamentally, from all the apes, in the character of his brain, which alone,

it has been strongly asserted, exhibits the structures known to anatomists as the posterior lobe, the posterior cornu of the lateral ventricle, and the hippocampus minor." (102)

These propositions, though the first has appearances in its favor, turn out to be unsupported "by a single anatomical preparation," and "it is precisely these structures which are the most marked cerebral characters common to man with the apes."

The learned Professor, after tracing the progress of the brain through fish, reptile and bird, and as it is found in the lowest marsupials, such as the *Opossum*, points out an apparently new structure connecting together the cerebral hemisphere among placental mammals. He also notices the striking advance from the evenly rounded brain of the lower placental mammals, to the tortuous cerebral foldings of the Elephant, the highest apes, and man. These comparisons also disclose some curious facts : as that the lowest man's skull has nearly twice the capacity of that of the Gorilla ; yet, this difference is not so great as that between the lowest ape and the Gorilla or Chimpanzee—nor so great as that between the lowest and the highest of the human species.

It follows from this remarkable linking together of created things, and the order of succession from lowest to highest, that there is a necessary connection between them :—that the creation of the prior thing is necessary to that which is to follow. No-

thing can exist without a cause; and in a regular chain of intermediate causes, "nothing can exist but from a prior, and at length from the First."

The Earth could not exist without the Sun. The animal and vegetable kingdoms could not exist without the Earth. The Molusk and Articulate divisions could not exist without the Radiate, nor the Vertebrate without the three prior types, as a house cannot be built without a foundation.

Birds could not have existed without the Pterodactyli—the Cetacea without the Ichthyosauri—the Horse without the Hipparion—Man without the Ape. It is true many of the prior links have become extinct; but they have served their uses, like the scaffolding to a building, which is removed after the work is finished.

This wonderful connection and inter-dependence is further proved by certain facts in embryology. The human embryo, commencing like every other, with a simple cell, is subject to a metamorphosis representing the principal stages in the entire animal kingdom from lowest to highest. At any intermediate stage of creation, as when it had reached no higher than the fish, man could not have been created—at least, his creation then, would have been out of the established order.

Third, There is a question of much importance touching the principal subject, about which there is a difference of opinion—that of Heredity, or, wheth-

er individuals of species always produce their like. An affirmative answer to this question effectually disposes of the Darwinian theory, and, unfortunately for that theory, the facts bearing upon it, falling under human observation during the entire historic period, are all one way. These facts bear out the assertion that like uniformly produces like, under ordinary generation, with minor differences,—that is to say, dogs have always produced dogs—horses, horses, etc. It is true there are minor differences without number, because there never has been, and never will be any two things exactly alike. The type of a species is well represented by a straight line, and the variations are departures from this line up or down, with a constant tendency to return to it, and keep in near proximity. This is the historic record, and there have been no experiments by domestication or otherwise, by which it is substantially contradicted. No amount of bird training has ever changed a pigeon into a hawk, or anything but a pigeon. The inference is fair—nay, it may be said to be conclusive—that heredity in ordinary generation, has always been the rule, and always will be. In this, as the Duke of Argyll well says, Darwin has given to known causes, unknown effects.

Man being the last creation of species, is undoubtedly to remain the last. There was a final purpose from the beginning; and that was reached and consummated in man. Says Agassiz: "Who

can look back upon such a series, coinciding to such an extent, and not read in them the successive manifestations of a thought, expressed at different times in forms ever new, and yet tending to the same end, onward to the coming of man, *whose advent is already prophesied in the first appearance of the earliest fishes.*" (On Classification, 167.)

Assuming that the *Rhizopod*—found in a bed of rocks lower than the Siberian—was the first appearance of animal life upon the globe, it must have been created by direct influx into a protoplastic receptacle of earthy materials. It was a nearly shapeless mass, yet it had life, and was the birth of a species from *dead matter ;* the matrix and the offspring being separated by whatever separates and divides the inorganic from the organic kingdoms of nature—and this must certainly be granted to have taken place in at least this one case. In this lowest form of life, the mode of Creation is easily comprehended. But the creation of an Elephant by influx into crude earth, would not much more readily fall into belief, than to suppose a house built without a foundation, and suspended in the air. The logic of creation has a more consistent and practical basis. The *Rhizopod*, low and useless as it seemed, could nevertheless serve as a matrix for the creation of an advance species ; and so on up. And the rule will be found to prevail throughout, that the higher and more complicated the life and structure, the higher and more

complex the matrix needed for its original creation and protection.

Creative energy flows gestatively into every living organism, not only for original creation, but to reproduce. Life is always infused, and puts on its appropriate form. Life controls form.

The life of a new species puts on its corresponding structure, varying radically, though by easy gradations, from the receptacle which gives it birth. Thus the life of a *Rhizopod* puts on the form of a *Rhizopod*—that of a dog, the form of a dog, and so on.—The distinction between reproduction and the creation of a new type is, that the former is by the ordinary process of generation and birth, while the latter is by *extraordinary generation* and ordinary birth. Reproduction, as already stated, follows the law of like producing like, with individual differences. God is the father of all his creatures, in a sense much broader than is usually understood. We often speak of Him as our Heavenly Father; but He is really our only progenitor. In common parlance, we have an earthly father; but our *life* does not come from him—he belongs only to the mediate causes by which we are created. My theory is that in the advancing steps of the creation of species, one is born from another, by force of creative power, without the ordinary *paternity* required in reproduction.

There is no middle ground between this theory and "special creation." Either each species were

specially created, or there was a prepared organization (*protoplasm*, if you please), adequate to the reception and protection of the infant being. And, when we come to this conclusion, there is but a step to the necessity of the highest living organism as a matrix (*protoplasm*) for the production of a still higher order of life and structure.

Man, therefore, having the highest order of life and structure, could only, under this law, be produced by the means of the next below him, to-wit: the anthropoid ape. But, though born of an ape mother, he is not of ape origin, because his paternity is due directly to the force of creative influx.

Human life includes the animal, but has a higher plane superinduced, which has the power to think analytically and spiritually, to make unlimited improvement, and generally, to do what animals cannot do. The animal is the foundation on which the human rests; and without the former, the latter could not exist. But human life is immeasurably above the animal plane, and so distinct from it, as to make the idea of the *development* or *evolution* of the one from the other utterly absurd. In fact, the impossibility of such a development seems to be conceded by Mr. Wallace, the co-originator of the Darwinian theory, in his late work on Natural Selection, (349).

Yet the idea of MAN born of an *Ape!*—Dr. Darwin descended from a *monkey!* Monstrous! Be-

fore, however, falling into incurable hysterics, let us trace the distinguished author of "Natural Selection," from conception, according to facts in embryology to which allusion has already been made. In the first place, he was a mere animalcule—then he resembled a fish—then a reptile—then a bird—then one of the lower mammalia—then an ape, etc. If he had been born in the fourth stage, and the embryo could have lived, the world would have lost one of its greatest naturalists, but gained an addition to its Reptilia.

The subject is too grave to be answered with ridicule or affected disgust; especially as there are multitudes of human beings in the world, including not a few, in civilized lands, of whose paternity a great many baboons might well be ashamed. Those who are nervous on this point may find relief by ciphering out the difference in dignity, between being created directly from the crude *dust of the earth*, or by means of this same dust organized into a complete structure of flesh and blood. The world—the Christian world, at least—has witnessed, historically, the exhibition of that which is called the "*miraculous conception*" in the production of a Human so infinitely above common humanity, as to be capable of complete one-ness with Divinity. Even in that grandest display of of divine benevolence, involving the salvation of mankind, God has seen fit, not to depart from His established laws of creation. And

thus has been completed the mighty cycle of being, which begins and ends in Himself.

It will be readily seen, that this theory does not preclude the idea, that other amorphous forms of life than the *Rhizopod*, were simultaneously created in the same way, as the starting points, or matrices, for all the principal divisions of the animal kingdom. Nor does it conflict with the idea, that individuals of the same species are, under certain limitations, varied by "Natural Selection," and domestication. Nor with the idea that men were created in different parts of the earth, and at different periods, and more than one pair, at the same period and locality.

It will also be observed, that under this theory, there is no such thing as a transition form in the sense spoken of by Darwin and his critics. The only approach to such a form, is an existing organism adequate as a receptacle for a new generation. In one sense it is a theory of "Special Creation," but it proceeds in a mode which gives it the appearance of "Evolution" or "Development."

Finally, I hold and am ready to prove, that this theory does not necessarily conflict in the slightest degree with the Genesis account of Creation.

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